GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST-OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, NOVEMBER 7, 1894.

TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLE:—Quarantine against Plant Pests . . . 441
California Experiment Centres.—I. *Charles Howard Shinn.* 442
FOREIGN CORRESPONDENCE:—London Letter . . . *W. Watson.* 443
PLANT NOTES:—Æsculus parviflora. (With figure.) . . . *J. G. Jack.* 444
CULTURAL DEPARTMENT:—Carnations, New and Old . . . *T. D. Hatfield.* 445
Carnation Notes . . . *W. N. Craig.* 446
The Flower-garden in Late Autumn . . . *J. N. Gerard.* 447
Chrysanthemums in the Open Air . . . *G.* 447
The Pocklington Grape, Ripening Pears . . . *E. P. P.* 447
CORRESPONDENCE:—How to Move Large Maples . . . *C.* 448
Insects Injurious to Plants . . . *S. C.* 448
The Pear-borer Again . . . *Professor John B. Smith.* 448
Salt-water as a Preventive of the Yellows . . . *M. H. Beckwith.* 448
The Pernicious Scale on Long Island . . . *F. A. Sirrine* 449
EXHIBITIONS:—Chrysanthemums at Short Hills, New Jersey . . . 449
RECENT PUBLICATIONS . . . 449
NOTES . . . 450
ILLUSTRATION:—A Dwarf Horse-chestnut, Æsculus parviflora, in a Massachusetts garden, Fig. 70 . . . 445

Quarantine against Plant Pests.

SOME time ago we published a cut illustrating the damage which was being inflicted on Pear-trees in a portion of New Jersey by a borer which had been detected for the first time in that state by Professor Smith. Individuals of one sex had only been obtained, and there was, therefore, some doubt as to what particular species was preying upon the trees, but an interesting letter from Professor Smith in the present issue identifies it as another European insect which has probably been introduced in Pear-stocks imported from Germany, and which, as we now learn, is already established over a considerable area. This is only one of many instances where our orchards and vineyards and farms and gardens have been subjected to serious loss by the introduction of foreign insects. Of course, these enemies do not move across the ocean in one direction only. The Phylloxera, for example, which has ravaged the vineyards of Europe, and is now probably found all over the globe wherever the Vine is cultivated, had its original home in America. It is well known that for several reasons insects which emigrate to different parts of the world may find such favoring conditions for their development in their new homes that they will multiply more rapidly and become much more dangerous than they ever were in the place of their origin, and there is, therefore, a special cause for caution in admitting these strangers. For these reasons laws were passed in California several years ago imposing a quarantine upon all plants likely to harbor any insects which may become dangerous to the fruit interests of that state, and it is said that Oregon, Washington and British Columbia are proposing to enact laws of the same character.

The report of Mr. Craw, the California State Quarantine Officer, we have not seen, but, to judge from an article in *The Independent*, his work has been of genuine value to the state. Of the four hundred vessels which he inspected last year he found plants and trees on one hundred and fifty-six. The greater portion of these came from Japan, but vessels came also from Honolulu, China, New Zealand, Australia and Mexico. Cinnamon-trees from Singapore were found infested with a dark gray wax scale insect unknown on our coasts. The young wood of some pot-grown Cherry-trees from Japan was found entirely covered with a new aphis which might have proved a serious injury to the Cherry-groves in California, and therefore they were dropped overboard. Different scale insects were found on Magnolias, Oleanders and Camellias. Oranges from Mexico were infested with the deadly "long scale," and guavas from Central America with other insects which might soon make themselves at home in southern California, where this fruit is now extensively cultivated. Perhaps in some cases the danger was imaginary, since the insects were bred in such warm latitudes that they could hardly survive the climate of California. Nevertheless, it is undoubtedly the duty of the officer under the law to destroy the infested fruit and plants. Two or three months ago a regulation was passed by the State Board of Horticulture in California prohibiting the importation of rabbits or other animals or birds which are known to be detrimental to fruit or fruit-trees, and ordering the destruction of such animals if they had been landed. This ordinance was probably inspired by the fact that a passenger on a steamship from Australia had brought with him one of the "flying foxes," or fruit-eating bats, which are so destructive in many tropical or subtropical countries, where, under cover of the night and in countless numbers, they invade and lay waste orchards and gardens in spite of every effort to repel them.

Of course, there are many difficulties in the way of framing satisfactory quarantine laws, and still more difficulty in enforcing them. The courts of California have been appealed to in several cases, and the work has been obstructed in other ways, but it is stated that only one new pest has been introduced into California since any attempt was made to enforce the laws. Some of the California papers are criticising eastern nurserymen who complain against these restrictions upon trade, and some eastern nurserymen, on the other hand, hold that the laws operate not so much to exclude the enemies of plants as to give a monopoly of business to local nurserymen. It is well for the fruit-growers to be vigilant if by this they can keep away from their state the Peach-yellows and the Plum-curculio, but when they criticise eastern nurserymen as unscrupulous and selfish they ought to remember that the pernicious or San José scale has been sent from California into the orchards of the eastern United States. Our issue for the 29th of August contains the picture of a pear infested with these insects, and at the meeting of the Association of Economic Entomologists in Brooklyn last August, Professor Smith bought half a dozen California pears at random from the nearest fruit-stand, and every one of them was infested. On some of them both male and female scales occurred, and they were in exactly the condition to favor the introduction of this much-dreaded pest. The skin of one of these pears dropped near a fruit-tree would furnish a perfect condition for the establishment of a colony. The protection of the fruit interests of the whole country may, therefore, demand an inspection of the thousands of car-loads of fruit going out of California, as well as of the few plants and fruits carried into that state.

The fact is that the establishment of an efficient quarantine on the borders of every state in the Union would be a task beset with endless embarrassment. A year ago (see vol. vi., page 401) we explained some of the difficulties which the Federal Government would encounter if, under its authority to regulate commerce among the several states, any attempt should be made to prevent the transportation of pestiferous insects and contagious plant diseases from one part of the country to another. We pointed out, too, some of the difficulties which a state government must face in its efforts to suppress destructive insects, plant diseases and noxious weeds within its borders. It would not be an easy matter to exclude these pests from foreign countries since the germs of disease, the seeds of evil weeds, the eggs of insects and insects themselves can be imported in a hundred ways, even if all the fruit and seeds and bulbs and living plants brought into the country

were rigidly inspected. These difficulties would be multiplied many fold if the supervision of all the commerce between the various states is undertaken. A single state may prohibit the importation of fruit or nursery-stock, for example, if it comes from a disease-infected district, just as it has the power to exclude cattle sent from a place where the Texas fever or pleuro-pneumonia prevails. In every case where such transportation is arrested, decision must be made as to whether the material is justly held or not, and what tribunal is to decide all these cases? If all the states set up a quarantine, such action might compel an examination not only of all the nursery-stock and fruits which cross state lines, but of every article which is liable to harbor a dangerous insect or a fungus spore, so that the cost of all this examination would ultimately be more serious than the ravages of the pests themselves. Legislation in individual states for the suppression of some of these enemies may be locally beneficial, but even then such laws will only have value when there is a strong public sentiment behind them, not to speak of such a public spirit in individuals as would enable them to take broad and patriotic views of the destruction of their own property when it threatens that of others. We by no means assert that quarantine laws which have been so far enacted are to be condemned, but it is pretty plain that not only the spirit of individual independence, but the sentiment of retaliation of one community against another could be easily aroused if it should appear that the rights of one section were infringed by the restrictions on commerce made by another. Altogether, the subject is one worthy of careful study by every thoughtful citizen.

In conclusion, it is worth while to repeat here what we have said before on more than one occasion: What the General Government can do, and what the state governments can do, in the same direction, is to give liberal support to the scientific study of contagious diseases of plants and of pestiferous insects, and to experimentation for insuring the most effective methods of eradicating them.

California Experiment Centres.—I.

THE experiment station system in California is interesting because it covers so much territory, and extends over such a range of soils and climates. It will, necessarily, be incomplete for many years to come, but care has been taken to occupy the most important outposts, and future development will be along lines already laid down. The work is controlled by the University of California, from its central station at Berkeley, on the east shore of San Francisco Bay, opposite the Golden Gate. The funds which maintain the regular outlying stations, six in number, are chiefly from the General Government, partly from the state. Several lesser viticultural and horticultural stations, supported by private individuals, and more or less closely connected with the university, are subject to some supervision. The points at present covered by the main system are: the Sacramento Valley, the San Joaquin Valley, the central portion of the Sierra foot-hills, the south-central part of the Coast range, the southern California coast, and the southern California interior valleys, besides several important districts around San Francisco Bay. The inspector, in visiting the six outlying stations of the first rank, travels about fifteen hundred miles to make a complete circuit. When the extreme north-west and north-east corners of the state have the stations which are greatly needed there, and when one or two more are established in the extreme south among the mountains and on the desert, a round of visits will necessitate a journey of three thousand miles.

The elevations of the stations vary from a few feet above the ocean to about twenty-five hundred feet above it. When a forestry station is established on Mount Hamilton its work will extend to four thousand feet above the sea; when the time comes for alpine stations one can be put in some Sierra valley seven thousand or eight thousand feet high. The climates vary as greatly as the altitudes and geographical locations, and the soil of each station covers as wide a range of representative soils as it has been possible to obtain. Differing in almost every particular from each other, the stations are developing marked individualities, and form a most attractive group of pioneer experiment-centres in forestry, horticulture and general agriculture.

THE CHICO FORESTRY STATION.

On the first of July, 1893, the University of California took possession of the Chico Forestry Station, which had been established half a dozen years before and had become run down and neglected. The sum of $2,000 per annum appropriated to keep up two stations was evidently insufficient, and it was plain the university would have to advance more funds to carry on the work until the next session of the Legislature, but the duty of the Agricultural Department of the University seemed plain, that is, to endeavor to preserve and develop a piece of state property potentially very valuable for experimental forestry purposes.

The twenty-nine acres of land which constitute the station are beautifully situated a mile east of the town, toward the foot-hills, on rising ground, south of Chico Creek, and comprise both red and alluvial soils. The shape of the tract is nearly that of a blunted triangle, with the base toward the town. Large Oaks and Sycamores are massed north, along the creek, and about a dozen large Oaks are on the station land. A lumber company's water-flume, extending back into the Sierras, passes along the western edge of the tract; the soil under it is continually wet, and offers a good place for Willows and water-loving shrubs. The station also controls, for planting purposes, a superb avenue extending from the south-west corner of the tract to the town. Large Locusts, and some very large White Oaks (Q. lobata) already line portions of this avenue, and it is being planted with other Oaks. Professor Sargent sent out a collection of Japanese Oaks, and many of the American species have been obtained elsewhere.

A second approach to the station is by a winding road along Chico Creek, a very charming drive or walk at every season of the year, through one of the finest young Oak groves in California. The vines of Vitis Californica here often climb to the tops of the Sycamores. Perhaps a thousand acres of woodland extend north from near the Forestry Station, and form one of the most attractive portions of Rancho Chico. In the centre of a large open glade, about a mile from the station, is the famous Hooker Oak, illustrated and described in Garden and Forest, vol. iii., p. 606.

On so small a tract as twenty-nine acres there cannot be any extensive forestry work. It is necessary to do much testing of species, a few trees of each, and this arboretum work is also desired by the community for the Chico Normal School classes. The demand for something of an arboretum is therefore strong, and, if kept within limits, entirely reasonable. But, as soon as the land is cleared of the Sorghum Halapense, which has been allowed to take possession of a considerable part of it, it will be practicable to lay out ten or twelve acres in mixed high forest, using California species for the Conifers, and for the hard woods probably Quercus robur, Q. Cerris, which grows very fast and tall here, Eucalyptus rostrata, Zelkowa Keaki and a few others. Such a forest would blend finely with the natural groves of Oaks near it, and would form a background for a more formal arboretum toward the western entrances. A little coppice-work may prove desirable, because a great many farmers on the treeless portions of California wish to have fast-growing wind-breaks and fuel-producing woodland, but know little or nothing about this department of forestry.

A very interesting lot of trees is now growing on the station, and some are quite large, as they must have been six or seven years planted, although no register of the place seems to have been kept. The Pines are chiefly Pinus Austriaca, P. Canariensis, P. insignis, P. ponderosa, P. resinosa, P. Strobus and and P. sylvestris—in some

cases several hundreds of each species. There are 112 very fine plants of Sequoia gigantea, which average ten feet high, a beautiful group, which, when thinned, will possibly leave twenty-five or thirty to stand for many years to come. The Redwood does not do so well, but a group of twenty-four are in fair condition. The other leading Conifers are Abies balsamea, Chamæcyparis Lawsoniana, Cedrus Deodara and C. Libani, Picea pungens, Pseudotsuga taxifolia, some Retinisporas, Thuya occidentalis, and a block of 117 Italian Cypresses, most of them fifteen feet high. In the present nursery are Abies Cephalonica, A. Pinsapo, A. Menziesii and A. concolor, besides a number of other Conifers, chiefly Californian, not yet represented in the grounds.

Some thirty species of deciduous-leaved trees are on the ground, mostly in groups, but a few as single specimens, and the nursery-stock covers quite an extensive range of species. The seed-beds, having been started on a small scale only last spring, do not yet make much showing. Glass sashes and lath screens for shelter have been provided, and a good deal of seed-sowing will be done this coming winter and spring.

As for the mixed high forest to be established on ten or twelve acres, the first experimenting necessary is with fast-growing native shelter-trees. It is quite likely that more land can be obtained by the state whenever it is really needed, but there is a good deal to be done before the present twenty-nine acres are fully utilized.

The foreman of the station is Mr. A. B. Boland, a nurseryman of experience, and the local patron or trustee is Robert Pennell, the Principal of the Chico Normal School, a Yale graduate, and a gentleman of high standing in educational work. According to the California system, each station has one patron, to serve as the local bond of union with the community; the inspector forms the chief bond of union with the central station, and, with the Director and his staff of workers, all of whom visit the outlying stations more or less, but none as often as the inspector does. The system is one that admits of much extension at small increased expense. It is avowedly planned with a view to the future needs of California.

Niles, Calif. *Charles Howard Shinn.*

Foreign Correspondence.

London Letter.

A NOTABLE SALE OF ORCHIDS.—Record prices for Orchids continue to be made. The collection formed by the late Mr. Hardy, at Pickering Lodge, Manchester, has been disposed of by auction, part of it having been sold about three months ago and the remainder this week. Mr. Hardy had a keen eye for a good variety, was a genuine lover of Orchids, and, most important of all, was wealthy enough to buy over the heads of most collectors. Thus it came about that when his plants came to be sold, the competition for them was keen. The sale this week lasted two days, and the prices of the lots, mostly single plants, averaged nearly £4. Some of the highest prices were: Cattleya Massaiana—a form of C. gigas—100 guineas; C. Hardyana, 70 guineas; Lælio-Cattleya calistoglossa, 50 guineas; L.-C. bella, 75 guineas; a larger plant of same, 150 guineas; C. Reineckiana, 75 guineas; C. Schrœderi alba, 170 guineas; Lælia Tresederiana, 22 guineas; a small plant of a white-flowered Sobralia, 50 guineas. These are all fancy prices, but a still more extravagant price was paid for a small plant, in a four-inch pot, of Cypripedium insigne Sanderæ, which was knocked down at 260 guineas. Mr. Hardy purchased this plant only a few months ago from the Messrs. Sander for 100 guineas. These prices equal those realized by thoroughbred yearling race-horses at the best of Messrs. Tattersall's sales! Clearly, the high position held in English horticulture by Orchids for the last twenty years is not likely to be lowered for some time at this rate.

SOPHRO-CATTLEYA LÆTA is a new hybrid raised by Messrs. Veitch from Sophronitis grandiflora and Lælia pumila Dayana, the latter being the seed-bearer. The flowers are about the same size as those of a good variety of the Sophronitis, the form of the lip being intermediate between the two parents; the color of the whole flower is a pale reddish pink, the front part of the lip being of a darker shade and the base white. It is not nearly as good in form or color as the hybrid Batemaniana, raised by Messrs. Veitch from the Sophronitis crossed with Cattleya intermedia, and flowered by them in 1886.

ZYGOPETALUM CERINUM, generally known under its Reichenbachian name of Pescatorea cerina, is one of the best, as it is now the most popular with cultivators of the section to which it belongs. It is in flower now in a shady moist position in the stove, its large cream-colored fleshy flowers leaning forward singly on stalks four inches long, the segments like a half-opened hand and the fleshy yellow lip with its raised ring looking like a tempting bait set in the middle of a five-fingered trap. This is the kind of Orchid flower that the uninitiated stand in front of and wonder why such a flower was made. A lady said it appeared to be laughing heartily, while a boy with her said he thought it was putting its tongue out at her. The species has been in cultivation since 1863. All the plants of this section, that is, the Pescatoreas, Bolleas and Warsecwiczellas, like shade and moisture.

STAUROPSIS PHILIPPINENSIS.—A plant of this interesting Orchid was awarded a botanical certificate last week by the Royal Horticultural Society. It is the type of the genus which was created by Reichenbach in 1860, Lindley having described it fifteen years before as a Trichoglottis. There are some eight species known, all of them Malayan, the best known in gardens being S. gigantea (Vanda) and S. lissochiloides (Vanda Batemani). Compared with these two, S. Philippinensis has small flowers; they are a little over an inch in diameter, brown-purple in color, with pale margins, and they are borne singly in the axils of the leaves. The habit of the plant is that of Vanda cœrulea. It is purely of botanical interest.

STENOGLOTTIS LONGIFOLIA.—With the exception of Masdevallia pulvinaris, a spike of which lasted in flower eighteen months at Kew, I know no Orchid that continues in flower so long as this Stenoglottis, which pushed up its spikes in the spring of this year, developed its first flowers at the end of July, and is still developing them. It is one of the most useful of the terrestrial Orchids introduced from south Africa, as it is easily kept in health under the same treatment as suits Odontoglossums, and it never fails to flower. The Kew specimen has five spikes, each now nearly two feet high, and the flowers are bright blue-purple, with reddish spots. It continued in flower over three months last year.

ANGRÆCUM KOTSCHYI.—Plants of this rare species were sent to Kew from the Kilimanjaro district, in eastern tropical Africa, two years ago, and one of them is now in flower. It has scarcely any stem, obovate-oblong, bilobed leaves four to seven inches long, and a horizontal raceme a foot long bearing seven pure white flowers, which are nearly two inches across, the two lateral petals set back like a pair of wings; the hanging spur, which is eight inches long, is spirally twisted, like a tendril, the apex being flattened out as if hammered. What can be the meaning of this twist in an appendage the use of which is supposed to be to hold nectar for the insects whose visits are essential to fertilization? There is nectar enough secreted in the spur, and delicious to the taste it is, but no insect could possibly get to it from above, however long and flexible his proboscis might be. The species is rare in cultivation, but it probably could be obtained in quantity from the region of the African Lakes Settlements.

MEGACLINIUM TRISTE.—All the species of this African genus are peculiar in the form of their inflorescence, and M. triste is especially so. It is now flowering for the first time in the Kew collection, and a botanical description by

Mr. Rolfe has been prepared for publication in the *Kew Bulletin*. It has a creeping rhizome, oblong, three-angled pseudo-bulbs two inches long, each bearing a pair of leathery leaves five inches long and one inch wide. The scape is eighteen inches long, bent at right angles two-thirds of the way up, the upper third being clothed with closely set imbricating chaff-like scales, from among which the purple-black flowers are developed in slow succession. The segments are half an inch long. The scape without the flowers is not unlike an ear of corn.

Bulbophyllum saurocephalum is another strange-looking Orchid. It has a purple club-shaped inflorescence four inches long with small purplish striped flowers scattered over the thickened portion, suggesting a crowd of small flies at rest or at "feed."

Miltonia Bluntii, var. Lubbersii, is one of the best of the Miltonias. The type is said to be a natural hybrid between M. spectabilis and M. Clowesii, and it was introduced in 1879. The variety was first flowered in the Botanic Garden at Brussels in 1887, when it was named in compliment to the curator. It has flowers nearly four inches across, the sepals and petals colored cream-yellow, heavily blotched with purplish brown, and the large patent lip purple at the base, the front part nearly white.

Maxillaria mirabilis is a new introduction of which a figure and description are published in the last number of *Lindenia*. It looks very near M. fucata, which was described by Reichenbach in 1886, and supposed to be from Ecuador. Monsieur Cogniau, however, recognizes this similarity, but says M. mirabilis is richer and deeper in color, and has smaller pseudo-bulbs. The flowers are two inches across, and colored bright orange-yellow and crimson, with brown spots. It is a most attractive Orchid.

Oncidium incurvum is one of the best garden Orchids in the genus, as, unlike many Oncidiums, it keeps in health from year to year in an ordinary greenhouse, and every autumn it sends up long elegant racemes of pretty flowers. At Kew a plant now in flower has racemes six feet long, with numerous branches, usually in pairs and five inches long, each branch bearing from six to nine flowers, which are an inch across, the segments reflexed and the color white and bright purple. The flowers last several weeks.

Eria stellata is an old garden Orchid, supposed to have been introduced from Java, and described and figured by Dr. Lindley. It is one of the best of the genus, growing well and flowering freely in a stove, the racemes erect, of about the same floral effect as a Roman Hyacinth, the flower-segments being nearly an inch long, pure white and fragrant. It flowers every autumn. There is a figure of it in the *Botanical Magazine*, t. 3605.

London. *W. Watson.*

Plant Notes.

Æsculus parviflora.

THE Dwarf Buckeye, properly called Æsculus parviflora, is probably best known to horticulturists by the name of Æ. macrostachya or Pavia macrostachya. This Buckeye is, in its season of bloom, one of the most effective shrubs on a lawn, and it is still too rarely seen in our gardens. There is a generally prevalent idea that the plant is an exotic, a native of China or Japan, whereas it is indigenous and peculiar to certain parts of our southern states, although quite hardy when transplanted into most of our northern states, and in central Europe.

It is never a tree, but is sometimes quite a large shrub. In its native habitat, in the higher districts of Georgia and South Carolina, it may vary from three or four to nine or ten feet high, according to situation and environment. It may be trained to grow taller, but under ordinary circumstances in cultivation it is usually a broadly spreading shrub from six to eight or ten feet high. The stems are usually numerous, the outermost and lowest often becoming horizontal and resting on the ground, the central stems being erect, so that a well-grown plant assumes a broad dome-shaped form. The branches which rest on the ground form roots very readily, and thus new plants are established, so that a single individual may in time spread itself over a wide area and appear very much broader in the diameter than in the height of its branching. The illustration on page 445 of a plant in a Massachusetts garden fairly represents the appearance of a plant under ordinary conditions, when it has reached an age of twelve or fifteen years.

The leaves of Æsculus parviflora are usually composed of five obovate, finely, but bluntly, serrated leaflets, smooth above and densely pale tomentose beneath. They are thin, and borne on long, rather slender, petioles. They are abundant enough to give a good covering to the stems, and they appear to be comparatively free from blemish by attacks of insects or fungi.

On the ends of the stems, above the dome of foliage, are produced the slender cylindrical, erect, raceme-like panicles or spikes of flowers. The spikes are often much more than a foot in length, but the length may vary on different individuals, and according to the conditions under which they are grown. In full bloom the plant is a most interesting and handsome object. The single blossom is small, the conspicuous portion being composed of four slender white petals, with about seven thread-like stamens, which sometimes protrude more than an inch beyond the tips of these petals. The lowest flowers on the cluster are the first to open, and they gradually expand during several weeks, exhaling a slight sweet fragrance, and proving very attractive to many kinds of insects. A great merit of this shrub is its habit of blossoming after the majority of woody plants have passed their flowering stage. In this latitude blooming may begin in early July and be continued well into August, according to the situations in which the plants are placed.

In northern gardens it is usual to find comparatively few fruits produced as a result of the innumerable blossoms. These fruits are smooth on the outside, and not prickly like those of the Horse-chestnut, and each generally contains a single seed. Very often the seeds do not ripen, being checked by frost.

This Dwarf Buckeye may be propagated by its ripe seeds, which should either be planted at once in the open ground or kept in moist earth through the winter. They should never be allowed to become really dry. The habit of the plant naturally suggests the facility of propagation by layering, and new stock may be obtained from cuttings.

Æsculus parviflora is the only white-flowered shrubby species in cultivation, but Æsculus Pavia, of the southern states, is another shrubby Buckeye. Its flowers, however, are bright red, and more like those of our ordinary red-flowering Buckeyes, with stamens but slightly showing outside of the petals. This plant is rarely tried in northern gardens, although when procured from the higher altitudes of its native habitat, it might prove hardy in many of the northern states.

Arnold Arboretum. *J. G. Jack.*

Vaccinium corymbosum.—Our woods would lose much of their beauty in autumn if they were deprived of the undergrowth of various Ericaceous plants, and none of these are more brilliant at this season than the High Bush Blueberry, often seen in great masses in deep swamps and moist woods. It flourishes also in open pastures and along roadsides, but rarely attains in such positions a height of more than three or four feet. At its best it is a stout, wide-spreading bush, eight or ten feet high, or even more, and in the last part of October its scarlet leaves are fairly dazzling, and these glowing colors are retained for a month. In fact, it is a beautiful shrub at any season; in this latitude in late May and early June it is decorated with large white bell-shaped flowers, borne on the extremities of the branches of last year's growth; later on its abundant fruit is beautiful, grateful to the taste and wholesome, and it is unsurpassed in the splendors of its autumn colors. It is

grown as a garden-plant to some extent in England, where it is said to be very ornamental in November, but it is rarely seen here in cultivation, although it can be transplanted from its native swamps and hillsides with perfect safety, and it will thrive in good garden-soil and grow more rapidly than most plants of its class. It is strange that it has been so long neglected as an ornamental plant, especially since it has the additional value of bearing an excellent fruit—a fruit, too, which might, perhaps, be much improved if care was exercised in selecting individual plants.

A NEW YELLOW-FLOWERED DATURA.—A plant which was distributed last year by Messrs. Pitcher & Manda under the name of Datura cornucopia, and which received the honor of a first-class certificate from the Royal Horticultural Society at London, has become tolerably well known, largely through the generous display of it at the Columbian Exposition. Mr. W. A. Manda now has some plants from seed received from South America of what seems to be the same species, only the flowers, instead of being purple and white, are a uniform creamy yellow. The new plant seems to have the same stout habit, dark purple shining branches and large clear green leaves, which characterize the type, and it promises to be quite as floriferous. It flowers from seed the first year.

SCHIZOSTYLIS COCCINEA.—This Kaffir Lily, or Scarlet Flag, by both of which popular names it is known, is now in flower, and the ease with which it is grown and the striking effect of its bright red salver-shaped flowers, arranged in two ranks on long slender stems, makes one wonder why it is not grown more largely by florists, especially as it lasts remarkably well when cut. It belongs to the Iris family, and was introduced from south Africa thirty years ago. It can be grown in the open ground during summer and potted in September for the decoration of the greenhouse. In England it will bloom out-of-doors until December, and a good way to treat it here is to plant it in a frame into which frost can never enter. If placed in the conservatory or greenhouse it needs abundant moisture and an occasional stimulant. When the flowers are allowed to remain on the plant the seeds will often ripen here, and if sown under glass and transplanted in the open garden when about six inches high good-sized plants can be obtained in a year. It is also propagated by dividing the roots, which are not bulbous, in the spring. Most assuredly it is a plant which ought to be more frequently seen in American gardens, to the great majority of which it is a total stranger.

STERNBERGIA COLCHICIFLORA.—Among some collected bulbs of Sternbergias, now flowering in Mr. Gerard's garden, are a few plants of this species. The flowers appear before the leaves, and are about the size of those of S. lutea, though, perhaps, lighter in color. They are Colchicum-like in form, the inner segments being narrower than the others. The leaves may be expected in the spring.

Fig. 70.—A Dwarf Horse-chestnut, Æsculus parviflora, in a Massachusetts garden.—See page 444.

Cultural Department.

Carnations, New and Old.

DURING the past summer two Carnation growers of my acquaintance made a tour of England and Scotland, visiting the principal horticultural establishments, and particularly those where Carnations were made a specialty. They went separately, and so their views were formed independently, but both expressed astonishment at the great variety of types: Bizarres, Flakes, on white and yellow grounds; Cloves and Selfs, not to mention the beautifully edged Picotee forms. Again, they noted the clear division between hardy or border

varieties and the tree or perpetual-flowering varieties. Since hardy Carnations have not been satisfactorily grown in this country, these are seldom, if ever, seen. The Carnation, as the majority of us know it, is an offshoot from the tree or perpetual. But what most struck my American friends was the marked difference between the English and American types of the perpetual class. Both are the result of very careful selection and adaptation to the conditions under which they are grown. These are wider in matters relating to culture than to climate. I do not know of a single old or new English variety now grown here, at least for profit, the simple reason being that they cannot be flowered to any extent during the winter months. On the other hand, our varieties, grown on the other side, under ordinary pot culture, are regarded as flimsy. No wonder they should be soft under a sunless English winter.

Carnation growers across the water say that marked advance has been made, and that the plants and flowers there are better than they ever were before. So here, the improvement during the last ten years has been wonderful, and yet the best American and the best English Carnations are farther apart than they ever were. One of my acquaintances admired and brought home a few plants of the new crimson Uriah Pike, of which we have heard so much, and a comparison between this and the best of our American crimsons, Ferdinand Mangold, shows surprising differences. The former, with its broad, dense foliage of strong growth, shows unmistakable traces of the old Clove breeding. The latter, tough, blue, with abundance of narrow, erect, rounded leaves, of hard texture, admitting freely the light and air, so that the soil may be kept sweet, is just the type of plant needed for best results under glass in winter. The best that can be hoped for from Uriah Pike is that as a pollen parent it may infuse new life into varieties which have lost constitution through constant cultivation indoors. We can hardly expect much improvement, however, on Ferdinand Mangold, as a perfect crimson, for some time. Tailby, Fisher and Fewkes have been raising and testing crimsons every year, but so far nothing has approached the one now generally grown.

I lately spent an afternoon with each of the veteran growers and raisers of Carnations, Fisher, of Framingham, and Tailby, of Wellesley. Their reminiscences were most interesting. Mr. Fisher is of opinion that while the varieties of to-day have certain good qualities required in the retail florists' business—that is, they hold their color, they do not fold, they have long stems, stronger calyces, greater variety, and a range of colors not generally found in the older sorts—nevertheless, no substantial gain in size has been reached. Few flowers grown in the ordinary way, and for market, average more than two inches across. It is only by disbudding and special culture, which does not often pay, that three inches, and sometimes more—as in the case of William Nicholson—is attained. But old varieties wear out, and if any real advance is made, or if we wish even to hold our own, new varieties must constantly be raised. It may be here noted, that this is not the case with Chrysanthemums; old varieties can be grown as well, or better, than they could be fifty years ago. Mr. Fisher has raised over eight hundred seedling Carnations this year, and of these about a dozen are taken in for trial.

The method of raising and flowering seedlings gives a clue to the origin of the American type. Seedlings are planted out as early in the spring as possible, having been fertilized, ripened, sown and raised to the planting-stage indoors during the winter. This rearing of the plants under artificial conditions must have a definite influence on their constitution and habit. Those which bloom first generally show more of the perpetual character, and if the habit, color and other requisites are good these early-flowering plants may be marked and retained for trial. It is seldom, however, that the earliest bloomers have constitution enough. The mid-season ones are the best. Those blooming toward the end of the season often give the finest flowers, and are of excellent constitution; but their lateness, indicating an affinity to the border type, is against them, and they are often found to be late under glass, and croppers at best. Those which do not bloom at all are of no use to the American florist, the majority being of the true border type, and to this type about ten per cent. of the entire lot of seedlings invariably revert, no matter how carefully the seed-flowers are selected. One of Mr. Fisher's new seedlings attracted attention as a particularly bright scarlet. It is notable that up to date the most profitable scarlet varieties are Portia and Florence, and of the two Portia is generally conceded the brighter, and, although not so large as Florence, it has a better stem. Florence is a heavy cropper, and fine when freshly picked, but its color does not hold well. This new variety is a third cross of a scarlet Marguerite on Florence. It is both early and prolific, and has a good stem and calyx.

As far back as 1877, about the only varieties grown by florists were Boule de Neige or La Purité, for white, and De Graw, cherry-red. From these several were raised—very good in their day, but now out of date. Anna Webb was raised in 1882, which, until a year or two ago, was the best crimson grown. It is now superseded by Ferdinand Mangold, raised by W. W. Simmonds, of Geneva, Ohio, as a seedling from Anna Webb. This is said to be of better constitution, but, for my own part, I see very little difference, and many growers still prefer the original.

Florence came in 1884, and is one of the healthiest growers and most prolific of its color to-day. Ada Byron and William Nicholson, the two new pink varieties sent out this spring, are also of Mr. Fisher's raising. He also has some fine new whites, it being the raiser's object for some years past to get a white flower equal to Mrs. Fisher, with a better stem. Some advance has been made, but he finds some objection to all of them.

Joseph Tailby is known among Carnation growers as the originator of Grace Wilder, which, until a year or two ago, was the best commercial pink variety. After nearly twenty years of service, its constitution is gone, and the raiser himself finds he cannot grow it with profit any longer. William Scott is its best substitute, and is really a very fine variety, but its color does not hold so well, showing traces of purple when a day or two old. Mr. Tailby has been working for a number of years to get a pure yellow prolific enough for commercial purposes. That he has a perfect flower of this shade in Henrietta Sargent is true, but, although several crosses removed from the border type, it is still late, and does not flower profitably until February. Orders are booked ahead for the crop, and, with higher prices, it pays as well as the more prolific varieties.

From Boule de Neige and De Graw came some of the best varieties ever raised, and Mr. Tailby says if he now had some of these plants which originated eighteen years ago they would be profitable, but at that time striped and other fancy varieties had no sale. To my suggestion that Grace Wilder be taken as a seed parent, the reply was made that it had never been done, and never ought to be. A very prolific kind should not be used for seeding; such plants nearly always lack constitution. The rule is to take a stronger variety for seeding, and to this end there were planted here a number of single and semi-double sorts of the proper sturdiness for this special purpose. It is seldom that the pollen variety does not transmit its color and general character to the seedlings. To illustrate this an instance was shown where a variety with a striped flower whose size and color were all that could be wished, but with a bushy and straggly habit, was used as the male parent. It so happened that one flower of this variety had sported a Malmaison pink. Pollen was taken from a normal flower and applied to a flower of another variety which had the qualities required for a seed parent; and then pollen from one of the sport-flowers was applied to a second flower of the seed parent. Each flower produced seed, and the two groups of seedlings plainly show the influence of the pollen parents, one group showing kinship to the normal flower, and the second group showing as clearly the Malmaison blood of the sport. A promising new white, Helen Schafer, a cross between Mrs. Fisher and Lizzie McGowan, seems, by its intermediate form, to inherit the qualities of both parents. It was named in honor of Miss Schafer, the lamented President of Wellesley College.

Wellesley, Mass. *T. D. Hatfield.*

Carnation Notes.

OWING to the exceptionally mild weather which we have had during October, Carnations grown in the open ground are still blooming profusely, and the flowers of Mrs. Fisher and Nobscot (scarlet) are quite equal to those produced in August. It is quite unusual to gather presentable Carnation-flowers in November outdoors; as a general thing our plants are killed by the middle of October.

Plants in the benches will now be giving plenty of bloom, and, if not already staked, ought to have some support without delay; if allowed to fall down and hang over the sides of the benches the plants will look unshapely when tied up with crooked stems. There are so many different methods of staking these plants that very little that is new can be said on that point. In past seasons we have used cane or deal sticks; this year we have substituted galvanized wire, cut in straight lengths two and a half feet long; black iron wire is drawn from end to end of the rows to tie the stakes to and steady them. Staked in this manner the beds have a much neater

appearance than where wooden stakes of various lengths and sizes are used.

So far we have not detected any signs of rust on our plants this season, but in some places the disease is ranging in a very virulent form. At one establishment, where some 30,000 plants are grown for the Boston market, and where in past seasons magnificent flowers have been produced, the rust has gained such a foothold that literally every plant in the numerous houses is badly affected; the disease is not confined to a few spots on the foliage, but the plants present a brown appearance and the rust runs up the flower-stems to the very calyx. Varieties thought to be rust-proof, such as Ada Byron, William Scott, F. Mangold, Hector and Nicholson, are all badly rusted here, although we have never seen them diseased elsewhere.

As a preventive of this serious disease we use the following mixture: One pound of sulphate of copper, dissolved in two quarts of ammonia in a two-gallon jar; when dissolved add another quart of water, and stir well. This mixture will keep for some time. A wineglassful to a twelve-quart can of water will make the solution strong enough to be used with safety on the plants, and a syringing every week or ten days should be given, so as to wet the plants thoroughly each time. Last year we tried other remedies without avail, but they were only used after rust had appeared. It is well to look over the plants occasionally, and if any rust is showing, the affected part should be carefully picked off. Only by eternal vigilance can the cultivator ward off this foe. Red spider is another insidious enemy which is liable to make its appearance now that more fire-heat is being used. Well-directed syringing will keep all spider away. The idea that Carnations dislike wetting overhead is absurd; the foliage may safely be syringed two or three times a week, even in midwinter, if the morning of a dry day is chosen for the operation, so that the plants will dry before nightfall. Where any of the plants are near the hot-water pipes it is best to give them a hosing every day.

About the middle of November we generally give our plants a little bone-dust or some chemical fertilizer, loosening the surface slightly with a hand-fork before applying it. Unleached hardwood ashes also make an excellent stimulant. The plants will be benefited by a scattering of fertilizer about once in two weeks. Liquid-manure we prefer not to use until nearer spring, when the plants require stronger stimulants.

Taunton, Mass. *W. N. Craig.*

The Flower-garden in Late Autumn.

THE garden is now interesting from its promises for the future, though not yet entirely devoid of flowers. Even in a latitude as far north as our own, a well-stocked garden is really at rest only at short intervals during the hardest weather, and one garden season glides insensibly into another. Seldom does a hard frost keep the plants entirely dormant for more than three or, at most, four weeks in succession. At the end of this time the benumbed foliage, where any appears, will enliven under a genial sky, and the hidden bulbs continue their slow, but sure, progress. After the first of the year a few hours' sunshine will encourage the Snowdrops to expand their flowers, and these are soon followed by the Anemones, Irises and Scillas in a rapidly widening procession. At present the Aubrietias, the Arabis and the Saxifrages are happy with the new growth and the promise of flowers to come. All of the bulbs have made some start. Most of the Grape Hyacinths have been showing their foliage for some weeks, as have those of the Triteleias, and the leaves of the Snowflakes are appearing. The square leaves of Iris tuberosa are fully formed, and the Oncocyclus Irises are growing in vigor. The leaves of the Spanish Irises and of the Algerian I. Tingitana will soon appear; and some of the hardy Cyclamens, having shown their flowers, will give their energies to the production of leaves. The Imperati Crocuses are well advanced, giving promise of a succession of their very early flowers. It will thus be seen that we have life in the garden, though few of the small bulbous plants are in flower except an occasional late Colchicum, Crocus or Cyclamen and some belated Sternbergias.

Bulbs generally are to me especially fascinating subjects, since they often possess such potentialities of beauty in flower, and curious habits as to dormancy and growth. They usually have a vigor of purpose and a capacity of life and reproduction which is as amazing as it is gratifying. I often feel a childish desire to dig up the bulbs in their growing season to study their growth. As all the hardy bulbs are, perhaps, not yet planted, it may be well to say that satisfaction will be found in planting them closely, especially if the plantings are not to be permanent. Twice their diameter apart is none too close for the planting of most bulbs for effective display, as a mass is always more pleasing than a scattering of flowers with a wide showing of bare earth. From the notes of my friends and my own experience, I have never arrived at any satisfactory conclusion as to the proper depths to plant the various common hardy bulbs. I doubt if the depth be very material within certain bounds. If the larger ones are buried six inches and the smaller ones three inches they will not usually be misplaced. A mulch of manure on top of a bulb-bed seems usually to be the correct thing, though this is not essential here over the really hardy bulbs. A mulch of this sort is not pleasant under one's windows, and I prefer usually to leave the beds bare, and always do so if I happen to be forehanded enough to have caught a crop of seedling Poppies over the bulbs.

South of this, say from Washington to South Carolina, where the winters are more open, it would seem that winter gardening would prove quite satisfactory.

Elizabeth, N. J. *J. N. Gerard.*

Chrysanthemums in the Open Air.

BESIDES the showy Sunflowers and Asters, which can be had in almost endless variety from August to November, we ought not to forget the Chrysanthemums, which literally come in hosts; for, until one has grown these plants, he has never experienced the pleasure of having flowers in real abundance. The large Rose-grower, of course, secures fair crops, but, at the best, the flowers are soon over, while Chrysanthemums from the same space can be cut in greater abundance, are more lasting and of an infinitely greater variety of form and coloring. Our professional friends who contribute to the horticultural papers keep us up to a high standard in the cultivation of these plants, which is quite correct from their point of aim, which is, of course, nothing less than perfection. I am glad to see, however, in gardens, that many Chrysanthemums are grown in a more natural way, to the evident enjoyment of the growers, for there is no more beautiful object in the garden at any season than a mass of well-grown Chysanthemums in the usual keen weather of late October. By well-grown I mean well-branched plants, with thrifty leaves and judiciously disbudded. Of course, these plants should here have a sheltered location, with some protection ready when frosts appear. This is easily arranged, especially if glass sashes can be made permanent overhead. The object should be never to give artificial heat till actually necessary, and then as little as possible. This certainly requires more care and labor than the cultivation of plants in a greenhouse, but the flowers seem to me much more enjoyable, and rejoicing in a life and vigor quite their own. They will not be so large or perfect as the monsters which appear at the shows, but they arrange better and are more useful and lasting as cut flowers. While the overgrown flowers on stiff stems only seem interesting to me as examples of cultural skill, it is quite unreasonable to go to the other extreme and not disbud one's plants. Nature has endowed most varieties of Chrysanthemums with entirely too many buds, so that if all are left to struggle with each other for the needed food to develop them, none will be satisfactory. In selecting Chrysanthemums for outdoor exposure of this kind, one should try to secure the hardier kinds, like the "Old Yellow," examples of which can be found in every old country garden. Select, also, the earliest-flowering kinds, and avoid those with thick petals, which kinds are easily frosted.

Then, with the Chrysanthemums, one should, of course, grow the Cosmos, of which I am glad to find improved strains available. One from Henderson this year is a very large-flowered, rosy pink of a most satisfactory shade, and a great improvement on the old lilacs. Cosmos grows too tall naturally, and should be either cut or pegged down in the summer, which will bring it into a range of three or four feet at flowering time, when it can be readily protected.

Elizabeth, N. J. *G.*

The Pocklington Grape.—Of all the Grapes to endure the waste of pollen by the heavy rains of 1894, the surest and best were Golden Pocklington, Moore's Early and Jefferson. On Lindley, Goethe, Vergennes and Iona some fruit set and ripened, but otherwise my vines were nearly bare, a few scattered bunches only were to be found. I am inclined to think that Pocklington is even a better Grape for general planting than has ever been claimed. It is rather later than Concord. I do not always get it ripe enough to show its best qualities, but it has a large, solid bunch of the handsomest fruit of superior quality. The vine is very hardy, the pollen very abundant, and the crop a sure one.

Ripening Pears.—This is a simple operation, but four-fifths

of the pears that reach market are rubbish, without color or flavor. Fall pears especially, such as Sheldon and Anjou, rarely ever get to the consumer in good condition. I have formed the habit of engaging such fruit ahead of time to special consumers, with an agreement to hold them in storage until fit for table use. The Anjous in this way may be ripened all the way from November 1st to the middle of January. They should be spread, about October 20th, in shallow bins in a dark, cool cellar or storeroom, away from draughts of air. They should be picked with tenderest care. As they turn yellow they can be removed for use. It is, of course, possible to hasten ripening by placing the fruit in a warm room.

Clinton, N. Y. *E. P. P.*

Correspondence.

How to Move Large Maples.

To the Editor of Garden and Forest:

Sir,—It is my purpose to move some Norway Maples some six or seven inches in diameter and pretty thickly furnished with limbs at the top. The impression seems to prevail here that Maples should not be cut back or trimmed like other trees. I should like to know whether it would be proper to prune the trees, and, if so, any suggestions as to the proper method of cutting them back would be appreciated.

Westbrook, L. I. *C.*

[In removing trees the roots are generally injured to a greater or less extent, and those which are bruised must be cut away; it is good practice to prune in the branches to a corresponding extent, so that there will not be more leaves than the roots can supply. Norway Maples of the size indicated cannot be removed without the loss of many roots, and pruning will be necessary. Such pruning will be perfectly safe, as these Maples are not injured more than any other trees by this operation. A great deal of this pruning can be effected by thinning out the inner branches, but there should be no hesitation about cutting back limbs where this seems necessary. When the ends of the branches are pruned they should be cut back to a limb, the wounds should be covered with coal-tar, and no stubs should be left to decay. In removing such large trees it is good practice to prune the roots back by digging a trench about the trees, say, five feet from the trunk, and if this trench is filled in with good soil new feeding roots will start out during the next year, so that the tree will be in excellent condition for removing in a year from the coming winter. Large trees can be removed with success, but it costs time and care and money. Persons who do not choose to go to the extra expense, however, can console themselves with the reflection that, as a rule, it is best to plant small trees, and that a tree ten or twelve feet high will probably be as large in ten years as one planted at the same time when it was twenty-five feet high.—Ed.]

Insects Injurious to Plants.

To the Editor of Garden and Forest:

Sir,—I have never suffered serious loss from insects, and, therefore, although I have glanced over what has been published in Garden and Forest and other papers about various insecticides, and the methods of using them, I have never made any serious study of the matter. I have vague ideas of kerosene emulsions and Bordeaux mixtures and arsenical compounds, but I have no full knowledge of when or how to apply them or what particular weapon to use against particular insects. Last year white grubs in my Strawberry-beds brought the matter home, and I must be prepared against them another season. My Plum-trees, too, suffered from curculio, and I am inclined to try something different from the old-fashioned jarring method. Where can I learn such rudimentary tactics as will enable me to make something like an intelligent war on my enemies?

Elizabeth, N. J. *S. C.*

[The bulletins issued by the experiment station of our correspondent's own state contain all the information needed; and, besides these, there are so many good treatises now published that we can hardly pick out one from a dozen for commendation. A twenty-page tract has been issued during the present year by the United States Department of Agriculture as Farmers' Bulletin No. 19, which will probably furnish all the instruction needed by a novice. It contains a list of the more important insecticides, with directions for their preparation and use. It also explains the habits and structure of our more common insect enemies, showing why the different applications are fatal to them, and giving the times and seasons when these should be applied. The bulletin was prepared by C. L. Marlatt, First Assistant Entomologist of the department, and it will be sent to any one who writes for it to the Secretary of Agriculture, Washington, District of Columbia.—Ed.]

The Pear-borer Again.

To the Editor of Garden and Forest:

Sir,—In your issue for September 19th, the specific name of the Pear-borer, there described, was doubtfully given as Agrilus acutipennis. At that time it was believed that we had to do with an American species, and the possibility of another European importation had not been considered. Recently my attention was called to an account, published in the volume of the *Entomologische Nachrichten* for 1893, summarizing investigations made in Germany on Agrilus sinuatus, Olivier, as a pest on Pear-trees in that country. Careful comparisons made show the complete identity of that insect in habits and structure with the species observed by me in New Jersey, and no doubt remains that we have to do with another imported pest. It is a practice among nurserymen to import Pear-stocks from Germany and France for the purpose of grafting upon them American varieties, and I have succeeded in locating the probable point of original importation in the region now most infested. The time cannot be certainly fixed, but does not date back more than ten years. I find, also, that the insect is more widely distributed than I believed even a month ago, and it extends northward to Lake Hopatcong, at least. It is also asserted that the species has gained a foothold in New York state, in the vicinity of Marlboro, and it behooves growers in that region to examine their orchards carefully, to ascertain whether it is really there. This is another illustration of the dangers of careless importation of stock by nurseries, to which I called the attention of the Society for the Promotion of Agricultural Science.

Rutgers College. *John B. Smith.*

Salt-water as a Preventive of the Yellows.

To the Editor of Garden and Forest:

Sir,—In many Peach-growing sections the trees are being rapidly destroyed by the disease known as "yellows." In Kent County, Delaware, for example, the trees in several large orchards have been grubbed out and burned within the past two years on account of this disease. It has been rapidly spreading throughout that part of the state, and unless it can be eradicated by the prompt destruction of diseased trees or by some other practical method, Peach-growing will soon be a thing of the past in Kent County.

Early last spring the tides were very high along the coasts of Delaware and Maryland, and in several instances Peach-orchards were overflowed by the salt-water. The cold weather which prevailed at the time of these high tides caused the destruction of the fruit-buds in many of the Peach-orchards on the peninsula. A few orchards produced a fair crop of excellent fruit, and as they were in some instances located in the sections where the overflow occurred, the report was soon spread abroad that only those trees which were growing upon the overflowed land produced fruit and were free from yellows.

In order to ascertain the facts concerning the matter, I made a trip during the peach season among the bearing orchards in Delaware and along the eastern shore of Maryland.

In what is known as Quaker Neck we found many orchards yielding fair crops of excellent peaches, but many of these trees were on land which the water never overflows. In one orchard, a portion of which was on low land which had been overflowed, we could see no difference in the yield or the quality of the fruit between the trees whose roots had been treated with salt and those upon the high land, although the foliage of the trees on the low land was much more vigorous and of a deeper green than that of the trees on the high land. From what we learn the overflow of salt-water appeared to have little effect on the production of fruit, and unfortunately on the prevention of the yellows, so there is little hope that

any salt-water treatment will cure this disease. The fruit yield in this region was due rather to good cultivation of the orchards and to their proximity to water, which prevented the destruction of fruit-buds during the cold weather.

Experiment Station, Newark, Del. *M. H. Beckwith.*

The Pernicious Scale on Long Island.

To the Editor of GARDEN AND FOREST:

Sir,—The San José scale was observed first in the market at Jamaica on some Bartlett pears said to have been grown on the island. The scale was also conspicuous on some fancy varieties of pears exhibited at the Queens County Fair, and by tracing this fruit to its source some of the infected nurseries were located. We have found the scale on Pear, Apple, Peach and Quince stock in several nurseries. Some of the nurserymen think they have had this same scale on their young trees for the past twenty years, but the indications are that it has been introduced within the past two or three years. Some of the large nurseries of the state are undoubtedly centres of infection.

Nurserymen here evidently do not realize that this is a serious pest. They are used to seeing on their stock the native scale insects, which cause no marked injury. They apparently do not realize that large sums of money have been expended in efforts to exterminate this pest in California, and that it will be a more dangerous enemy here than the Colorado potato-beetle unless prompt efforts are made to suppress it. True, we probably have a better chance to fight the pest here during the winter than nurserymen have in California, but it will require an organized and very strenuous effort to overcome it.

This scale is now found in Virginia, Maryland, New Jersey and New York; in fact, in the very centre of the nurseries of the Atlantic coast. Nurserymen should make it a rule among themselves to put all stock through a vat of kerosene emulsion.

Every fruit-grower or nurseryman who discovers scale insects of any kind on his trees should send samples without delay to the nearest trustworthy entomologist.

Jamaica, L. I. *F. A. Sirrine.*

[Mr. Sirrine, together with Mr. V. H. Lowe, is now studying insect pests on Long Island under the direction of the New York Experiment Station.—ED.]

Exhibitions.

Chrysanthemums at Short Hills, New Jersey.

JUDGING from the crowds of people seen at Short Hills Saturday, the interest in Chrysanthemums is not waning. The fall show at the United States Nurseries has evidently become a fixed festival much appreciated by flower fanciers, who visit the exhibitions in constantly increasing numbers, and incidentally add to the vivacity and interest of the floral display.

As usual, the Chrysanthemums this year are massed in the two upper houses of the main block, the upper house being devoted to specimen plants in pots, and the lower one being filled with those planted out. In this house the centre is now occupied with a wide bench in which the plants have been grown in the modern method of shallow beds. Three inches of earth seems the standard bed in which the up-to-date florist succeeds in producing the most perfect Chrysanthemums, as well as marvelous Roses.

About the only criticism one would be inclined to make on these plants is that possibly the foliage and stems aro too robust. But this seems to be the present fancy with growers, who always point with pride to a specially rigid stem, which holds a mop-like head with all the grace of a poker. However, in this and the solid beds at the sides were thousands of well-finished flowers, comprising an assortment of the most modern and popular varieties, but largely the products of this establishment. I noticed here, especially, many good flowers of the novel variety "Pitcher & Manda," which appears to keep up the fine form in which it was shown last season. There were also many good flowers of Mrs. Alpheus Hardy, recalling the sensation which inaugurated this nursery. Five thousand square feet of Chrysanthemums, as seen in the upper house, is a display the equal of which is seldom seen, except at great exhibitions.

Among the flowers of all sizes, shapes and colors, the special interest, of course, centred in the new varieties of the nursery, which are to be first offered the coming season. Perhaps the most valuable ones were two early kinds, which were ready for cutting October 5th, these being J. H. Troy and John E. Lager, the former being white, and the latter a deep yellow of medium size, rather in the way of Ivory, but with wider petals, somewhat reflexed laterally. The other novelties were also in yellow and white, all of fine forms and the largest size. Miss Georgiana Bramhall is a delicate pale primrose, beautifully incurved, in perfect form and largest size. Miss Georgiana Pitcher is similar in form, with broader petals and richer yellow. Bonnie Marjorie, with these, makes a trio of yellows, its color being intermediate. The best white shown was Mrs. Twombley, one of the 1894 introductions. Mrs. Pullman, shown as a new yellow, does not seem to differ materially from Sunflower. Of odd colors, Dorothy Toler was the most promising—a full flower, well rounded, with cupped petals of a purplish pink shade. The best dark-flowered variety shown was Mrs. A. J. Drexel, a very rich red reflexed variety, one of the older introductions.

Among novel forms seen was a Japanese Anemone-flowered variety, with variegated foliage. The variegation was very white and distinct. We noticed also the single variety Daisy, to whose simple beauty we have called attention for several seasons. Looking at this collection, representing the best products of the florist's art, grown to the highest perfection, it seems to me that we have about reached a point beyond which we cannot expect much improvement in size or many valuable novelties in form. In fine whites and yellows we have a superabundance. Only pink flowers of perfect purity and delicacy are yet somewhat scarce. I suppose big bouncing Chrysanthemum flowers will always be appreciated, both by the growers and the public, but I believe that many flower-fanciers would be intensely interested in an exhibition of a comprehensive collection of the many rare, odd and varied forms known only to collectors, and which do not seem to have interested the commercial growers.

The Chrysanthemums at these nurseries occupy only two houses among a great number, which are fairly packed with choice and rare greenhouse plants, enough to interest a plant lover for days. The Orchid houses were more interesting than we have known them at this season, not specially for the great profusion of flowers of all the species due at this season, but for vigor of plants. The superintendent, Mr. Lager, pointed with just pride to the fact that the plants which he had personally collected were making stronger growths under cultivation than they had shown under their native conditions. This was certainly true of the Cattleyas and Odontoglossum Crispum, the latter being at present especially strong. Mr. Lager has grown the Cattleyas unshaded, and they are generously responding to such sensible treatment with larger pseudo bulbs.

New York. *Quis.*

Recent Publications.

The Biggle Berry-book, a Treatise on the Cultivation of Berries. By Jacob Biggle. Illustrated. Philadelpia: Wilmer Atkinson & Co.

Readers of the *Farm Journal* have long been familiar with the practical quality of Judge Biggle's teachings in all matters relating to the farm and garden, and this little book of 126 closely printed pages contains in a condensed form not only all the more important lessons in the culture of small fruits which long experience and close observation have taught the author, but it has gathered up in short quotations the opinions of a great number of the leading fruit-growers of the country on all the important questions of practice. The most approved methods of propagating, cultivating and marketing gooseberries, raspberries and currants are explained, but without much detail—the greater portion of the little hand-book being given up to the Strawberry. The preparation of the ground, the different methods and times for planting, the enemies of this berry and how to control them are discussed in a way which any novice can comprehend, while the comparison of the different varieties, new and old, with a statement of their various merits and deficiencies, is unusually complete and fair. The colored plates are actual helps to the text, and so in general are the other illustrations, so that altogether this little book can be safely trusted by the beginner who needs sound elementary instruction given in a clear and homely way.

Notes.

A Chrysanthemum exhibition, under the direction of Messrs. Siebrecht & Wadley, will be held at the Eden Musée from the 8th to the 18th of this month.

It is a striking proof of the unusual mildness of this autumn that a plant as tender as the Heliotrope is seen blooming in the open air on Election-week in the latitude of Boston.

According to some analyses made by the Chemist of the Pennsylvania Experiment Station, the chestnuts which an acre of trees would yield in an ordinary season would have a greater food value than an average yield of wheat or of corn.

We have received the report of the New York Experiment Station for 1893, and the report of the Cornell University Experiment Station for the same year. Both of them contain a great deal of matter of permanent value. Unfortunately, the last-named report has neither an index nor a table of contents, and its usefulness as a book of reference is greatly impaired by this omission.

Clematis paniculata attracts so much attention for the beauty of its flowers that its charms in late autumn are not thoroughly appreciated, but it has a habit of holding its thick leaves very late, and they are just now beginning to turn to rich coppery tints, while above them the abundant red seeds, with their light feathery tufts, give the final touch which is needed to make one of the most beautiful combinations which the season can offer.

In reference to the Dwarf Red-flowering Chestnut, Æsculus Pavia, to which allusion is made in the "Plant Notes" of this issue, Mr. Andrew S. Fuller writes that plants of this species, which he had raised from seed grown in Texas, have proved hardy in his garden in New Jersey. His plants are now ten years old and are about four feet high. Seedlings from Æ. Pavia flower when they are only two or three years old and not more than twelve to eighteen inches high.

The new Chrysanthemum Mayflower is a white variety of the largest size and perfect purity of color, and massive without being coarse. Minerva is a fine, new incurved flower of a particularly brilliant lemon-yellow. The stems of both of these varieties are strong enough to hold the heads, and yet they are not too rank. These varieties have not yet been distributed, but Mr. John N. May, who has the stock of both, is sending them to this city in admirable condition, and they are now bringing the highest prices of any varieties in the market.

Hot-house tomatoes are already in market, almost before there has been a killing frost. They are beautiful in appearance, and their superiority over the field fruits is shown by the fact that they command from forty to sixty cents a pound. Hot-house cucumbers, even in competition with the still abundant outdoor crop, sell for $1.50 a dozen. House-grown mushrooms sell for $1.20 a pound, while field-mushrooms bring seventy-five cents. Late-crop eggplants, from Florida, bring $3.00 a dozen In the general market the few Spitzenberg apples of first quality which come to this city bring the highest price of $4.75 a barrel. Late quotations of American apples in England show that Newtown Pippins still retain their supremacy there at $7.50 a barrel.

This is the midseason of Chrysanthemums, and the earlier market varieties are practically gone. The leading kinds now offered for sale among the whites are Ivory, Niveus, Queen and Minnie Wanamaker. Ivory brings about half as much as the others on account of its shorter stems. It is very profitable, however, to the growers, since it yields most abundantly and is easily grown. Of the pink varieties Mrs. E. G. Hill was the earliest and is still in good form. Viviand Morel is the most abundant and Ada Prass is the latest. Good yellow Chrysanthemums are now somewhat scarce, although this color and white are the most popular. The best varieties now on sale are W. H. Lincoln, Major Bonnafon and Challenger. Reds of any shade are very scarce, about the only variety seen in any quantity being George W. Childs.

The last report of the Pomologist in the Department of Agriculture contains a description of a new variety of Kaki, or Japanese Persimmon, named Gobey. The tree is said to be a rank grower of spreading habit and very prolific. The fruit is described as conical, bright red, almost seedless, of excellent quality and so large that many of the single specimens weigh more than a pound. One would think that a fruit of this size and appearance would soon make its way in popular favor, but the fact remains that the older varieties do not sell any better in this city than they did ten years ago. A small consignment came here from Florida last week and a small lot of very beautiful ones from Alabama. They hang heavily, however, on the hands of the dealers.

At the Chrysanthemum exhibition to be held in Springfield, Massachusetts, next week, beginning on the 13th of November, the Hampden County Horticultural Society, in addition to the usual competition between individuals, offers a prize of $50.00 in gold for the best vase of one hundred blooms exhibited by any regularly constituted florists' club or horticultural society. These displays are to be known as the Philadelphia exhibition, the Boston exhibition or the exhibit of any other city which purposes to compete. No restriction is made as to the number of varieties, and the exhibitors are at liberty to exercise their own judgment as to what kind or kinds will make the most attractive vase of flowers. This will be known as the National Prize. The plan, we believe, was originated by the Pennsylvania Horticultural Society, and it seems to be a good one for insuring an interesting display.

In a bulletin on Sweet-potatoes lately issued by the Louisiana State Experiment Station, Mr. Burnette, the horticulturist, says of different varieties that the greatest acquisition so far is one known as Vineless. It was found on a Mississippi plantation in 1884, and has since then been gradually distributed and propagated throughout the south. It is probably a sport of one of the common Yams, and is also known as the Early Bunch or Bunch Yam. The tops are short, never reaching three feet, and often not over more than two feet in length, stocky and compact, with large deeply cut and very dark leaves, and smooth medium-sized roots. The plants endure drought well, and on account of their short tops can be cultivated late in the season, which is often an important factor in the yield of a crop. The Vineless is a prolific and early variety, and the roots keep well and possess high edible quality.

Cattleya Bowringiana, on account of its free habit of growth and its abundant flowers, naturally invites experiments in crossing, and it has already become the parent of handsome hybrids. The latest one of which we have an account is given in a late number of the *Orchid Review*, in which case pollen from Lælia pumila was used, so that the plant belongs to the rapidly increasing number of Lælio-Cattleyas, and has been called Parysatis. Mr. Seden sowed the seed in 1888, and the first flower was produced in five years. The plant is described as about six inches high, with flowers intermediate in shape between its two parents, petals two inches long by one and a quarter broad, and the lip open as in the pollen parent, although it becomes more convolute as the flower grows older. The sepals and petals are of bright rose-purple; the front half of the lip is a deep magenta-purple with a pale throat, and altogether it is a beautiful little plant.

The street-trees of various towns in New Jersey have been so seriously affected during the past summer by certain insects, that Professor J. B. Smith, of the State Agricultural College, has thought it best to answer numerous requests for relief by a special bulletin. Of the insects injurious to shade-trees he speaks of the Elm-leaf beetle, the imported Elm-borer, or the leopard moth, and the white-marked tussock moth, as the most troublesome. The last insect can be kept in check with comparatively little trouble by removing the masses of eggs in the early winter, which are prominent on the bare trunks and limbs. The first one can be controlled by two or three sprayings of London purple, Paris green, or, perhaps, still better, with arsenate of lead. It seems to be a great task to spray a large Elm or a number of trees in a park or town, and yet Professor Smith says that the Elms on the college campus at New Brunswick, which are as large as most of those in the state, have been sprayed twice and well protected during the past year. On very large trees it may be impossible to reach every point so as to kill all the insects, and some will become full-grown and make their way down the trunk to the base of the tree. When this is noticed, a strong brine, whale oil, soapsuds, or diluted kerosene emulsion can be poured on the ground about the base of the tree for a distance of two feet and repeated at intervals of five days, as long as new additions are noticed. The imported Elm-borer, Zeuzera pyrina, is a serious pest, especially in Newark, where it has attacked all species of Maple and Elm, as well as Sweet Gum, Tulip-tree, Linden and others. This insect seems so difficult to reach that Professor Smith advises the cutting down of badly infested trees and burning them. Fortunately, the electric lights in some cities attract these moths, and large numbers of them perish in this way. The bulletin is an admirable summary of what needs to be known wherever any intelligent attack upon these three insects is meditated.